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The Role of Local and Newcomer Entrepreneurs in Rural Development: A Comparative Meta-Analytic Study[1,2]

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Abstract

Early studies of rural development suggested that newcomer rural entrepreneurs are important agents of change and responsible for new spatial development, but more recent research has concluded that there is no difference between newcomer and local rural entrepreneurs in this respect. Much of this literature is based on qualitative ethnographic case studies. Systematic pooling and scrutinizing of the main attributes and findings of such studies enhances their comparability and permits some generalisation. We therefore investigate newcomer and local rural entrepreneurship by means of a meta-analysis of 22 applied studies. Our statistical results show that newcomer entrepreneurs are relatively older, better educated and develop more non-agricultural business. They appear to be predominantly attracted by a rural lifestyle. In many cases newcomer entrepreneurs are not directly the instigators of economic development, but their contribution to physical capital formation is greater than that of the locals.

Key words: entrepreneurship, rural development, in-migration, meta-analysis

JEL Classification: L26, O18, R11

The Role of Local and Newcomer Entrepreneurs in Rural Development: A Comparative Meta-Analytic Study

MIGRATION AND RURAL AREAS

Rural areas are increasingly in a state of flux and are developing in a remarkable way. Although many policies take for granted that such changes must be driven by local impulses, early empirical studies emphasized the role of in-migrants as change agents, while more recent studies claim that they are not the only actors responsible for development in rural areas.

Migration is broadly the purposive movement of a person from one location to another. This movement is usually motivated by employment, income and housing concerns; predominantly to improve living standards or, more broadly speaking, wellbeing. On this basis, net migration tends to be from less developed to relatively more developed areas. This population exchange, including the depopulation of some areas and the repopulation of others, is a continuing process which has a long and notable history in which there have been at least three milestones in terms of the redistribution of population.

The first milestone, the emergence of significant rural-urban migration, was observed around 1850 in the UK and spread out all around the world (LEWIS, 1998; LUCAS, 2007). The main reason for rural-urban migration was the pursuit of employment opportunities (HARRIS and TODARO, 1970) that forced the rural population to move out of their settlements of origin towards surrounding towns (internal migration) or even further (international migration) (SCHUCKSMITH, 2001). An increasing urbanization rate, due to immense migration flows from poor rural areas, became the main concern of enlightened developers in the 19th century, which led them to seek solutions for the associated problems.

One of the developers' solutions was the suburbanization process which can be seen as the second milestone of migration history. Suburbanization eased the migration flow to urban centres, but generated new settlements at locations close to, and well-connected to, urban areas (WOODS, 2005). While urban planning was partially successful, poverty and a lack of employment opportunities remained key concerns in rural areas at the end of 19th century. Modernization of agriculture, often the only sector in rural areas, did not ameliorate the problems of rural areas but instead pushed more people to leave from there.

Although our world is still urbanizing at an increasing pace, a notable counterflow has taken place in recent years in many countries. This 'counterurbanization' is the third milestone of migration history, related to modernization in the 1970s and to globalization subsequently. Counterurbanization was first seen in the United States (BERRY, 1976), and later on in the rest of the world (BEALE, 1975; CHAMPION, 1989; HUGO and SMAILES, 1985; KONTULY, 1998).

It is difficult to separate out the different forms of counterurbanization, such as back-to-the-land migration, the pursuit of land-based lifestyles, and the creation of ecovillages (HALFACREE, 2007). In the literature, the patterns of migration flows into rural areas are evaluated mainly by the characteristics and motivations of the migrant groups. CHAMPION (1989) identified 17 different explanations for counterurbanization based on studies of nine countries. These mainly referred to changes occurring in urban areas, including institutional changes. According to CHAMPION, there are two schools of thought in the literature. The first agrees on two or three major explanations as a basis for understanding counterurbanization (GEYER, 1996; HUGO and SMAILES, 1985; KONTULY, 1998; KONTULY and VOGELSANG, 1988; MOSELEY, 1984), while the second school of thought disagrees on such generalization and prefers to explain the phenomenon by referring to the specificities of the location and the environment (SANT and SIMONS, 1993). It is

hence not easy to formulate a unified theory of counterurbanization, but it is clear that the phenomenon is generally less driven by economic factors and more by quality-of-life considerations (JONES et al., 2003; SOFRANKO and WILLIAMS, 1980).

Several types of urban to rural migration may be distinguished such as green migration (JONES et al., 2003), retirement migration (CROSS, 1990), commuter migration (CROSS, 1990), or expatriate migration (STONE and STUBBS, 2007). The phenomenon is usually seen as an internal, i.e. domestic, form of migration. However, international inward migration and the internal migration of the foreign-born have also become increasingly important (HALFACREE, 2008). On this basis, the broadest classification of urban-rural migration refers to the settlement of both internal and international migrant groups in rural areas. The impact of these new migration flows has only recently become a popular study object in the literature on sustainable rural development.

The main strategy of recent rural development plans is to support and stimulate entrepreneurship while exploiting the local potential of *rural capital* instead of bringing it in from outside (PETRIN and GANNON, 1991). Rural capital is an organizing concept for rural studies conceived by CASTLE (1998). It is the combination of natural capital, man-created capital, human capital, and social capital. Natural capital refers to the part of the natural environment that is capable of contributing directly or indirectly to human satisfaction, while man-made capital refers to the economic capabilities of the physical environment. Human capital reflects both the size of the working age population (with population growth leading to the widening of human capital) and investment in education and training of people (which leads to the deepening of human capital). Social capital refers to the networking, trust and relationships within communities. The importance of social capital in rural entrepreneurship, and the need for further research on this, has been emphasized by MECCHERI and PELLONI (2006).

The development and conservation of rural capital is of fundamental importance to rural people, as they attempt to resolve local problems and pursue their aspirations. Their endeavours may lead to the destruction of some rural capital and the creation of other forms (CASTLE, 1998). Rural entrepreneurship is fundamentally influenced by the relative abundance of each of type of rural capital. Conversely, the activities of rural entrepreneurs are the major driving force in rural capital accumulation (SKURAS et al., 2005; MECCHERI and PELLONI, 2006).

Classical theories of development have tended to ignore the role of entrepreneurship, but new theories have highlighted the importance of this notion, especially in order to encourage sustainable rural development by using local resources (KEEBLE, 1995; NORTH and SMALLBONE, 1996; PHILLIPSON and RALEY, 2002; RENKOW, 2003; STATHOPOULOU et al., 2004). The local population is a potential source for rural entrepreneurship. Locals have not always been willing to become agents of change, or they may have had limited ability to engage in new opportunities (NAUDE and WALT, 2006). Nonetheless, rural stagnation necessitated their – sometimes reluctant – involvement in new enterprises and activities. Nonetheless, local entrepreneurs are not always likely to be successful in developing economic activities and newcomer rural entrepreneurs have become a force of competition for the local population.

The appearance of this new group and the changes occurring in rural areas prompt two main questions: ‘Do local and newcomer entrepreneurs in rural areas differ in terms of their demographic and entrepreneurial characteristics?’; and ‘Do only newcomer entrepreneurs contribute to the development of rural capital?’ In order to answer these questions, the aim of this study is to investigate the differences between the characteristics and the impacts of newcomer and local rural entrepreneurs by means of a meta-analytic approach. Our comparison of both types of rural entrepreneurs is based on several

dimensions, viz. geographic (country, remoteness), demographic (gender, age and education), sectoral preference (agriculture, tourism and other sectors), motivation (lifestyle, locality, family/employment and the availability of subsidy), and the contribution to the four types of rural capital (natural, man-made, social and human) that have been identified as important in empirical and theoretical studies.

Data used in this study are derived from existing applied studies in order to investigate and integrate the literature on both types of rural entrepreneurs. Most studies of rural entrepreneurship are mainly qualitative and only partially comparable. The contradictory evidence of empirical studies and also the use of different research questions were advantageous in the search for a generalisation from diverse perspectives. In addition, these were also disadvantages, as the synthesis of such diversity is not an easy task. However, the systematic pooling of study findings by means of meta-analytic techniques enhances their comparability and permits some generalization. Therefore, in this paper we compare the characteristics and impacts of newcomer and local rural entrepreneurs by means of summary statistics and logistic meta-regression analysis. Our study is the first attempt in this literature to combine and synthesize study findings in a meta-analytic framework in order to generate more inferences about differences among rural entrepreneurs based on their origins.

In the second section, differences and similarities between newcomer and local rural entrepreneurs are evaluated from a theoretical perspective. The third section provides first the description of the database formulated by the integration and combination of 22 applied studies that jointly cover a total of 2,802 investigated rural entrepreneurs. This is followed by the results of descriptive analysis. This section also provides the empirical results of logistic meta-regression analysis. The final section reviews the results and suggests future research questions.

CHANGES AND CHANGE AGENTS IN RURAL AREAS: EMPIRICAL EVIDENCE

Rural society traditionally lacked a systematic awareness of the extent to which its man-made and natural environment was capable of innovation and competition (ROSTOW, 1959). In addition, the rural economy is heavily dependent on self-employment and small business which are fostered through rural entrepreneurship (VAN LEEUWEN and NIJKAMP, 2006). Entrepreneurship, the art of doing creative things for the sake of achieving a competitive advantage, lies at the heart of innovation (NIJKAMP, 2009). It is the driving force of the enhancement of the innovative capacity and growth potential of a region (ACS et al., 1999; NIJKAMP, 2009). Hence, entrepreneurship can be seen as the main tool to promote rural development and to exploit rural capital (defined in the previous section). Due to a prevalence of conservative attitudes in rural areas and a reluctance to change heritage and patrimony, it is commonly assumed in the literature that change agents of rural capital are mainly migrants and that changes are caused by their integration into rural areas. Rural migration research has evaluated in-migrants in terms of their demographic, social, physical and economic impacts on rural areas.

Demographically, newcomers change the population composition of rural areas in terms of age and education. In the literature, there is evidence that the newcomers are older on average than the local population. Retirement migration is seen as one of the main flows into rural areas (BURES, 1997; STOCKDALE et al., 2000), but the recent literature provides evidence that some older newcomers are not retired but, instead, people in employment (STOCKDALE, 2005). Nonetheless, they are older than local rural entrepreneurs. The young population born and raised in rural areas have a tendency to leave their home territory, mainly to advance their education, and then usually remain in urban areas where there are more, and better paid, jobs for graduates in their specific fields. At the same time, newcomers in rural

areas usually have high education levels as well. Together, these migration processes raise the average level of education of the work force in both urban and rural areas.

It is generally believed that rural people possess a strong sense of community and a marked feeling of belonging to their village. Such strong sentiments may be changed through the impact of inward migration (MILBOURNE, 2007). Newcomers integrate their existing relationships into their new relationships obtained in rural areas. This creates new social networks and may break defensive attitudes in rural localities once the newcomers are able to influence, or even control, local institutions (CURRAN and STOREY, 1993; ILBERY, 1998; MUNTON, 1995; MURDOCH and MARSDEN, 1995).

Empirical evidence also shows that newcomers appear to have a greater appreciation of nature than the local population (ANDERSON and MCKAIN, 2005; JONES et al., 2003). In other words, as newcomers perceive rural areas as the places where they can experience their 'idyll', they protect what they perceive as such (CLOKE, 1997). Due to their desire to live in an environment that offers a high quality-of-life, newcomers are also often responsible for the gentrification of the heritage of the man-made environment (ILBERY, 1998). The improvement of the manmade environment by newcomers may trigger a desire among the local population to improve its own housing situation, but often they cannot do so without some form of subsidy because of their limited earnings. In addition, the residential investment of newcomers increases house prices and creates a lack of low-cost housing for the local population (FINDLAY et al., 2000). Similarly, commuters prefer to see the natural environment preserved, thereby discouraging the development of low-cost housing (AHAS et al., 2001). Finally, it has been argued in the literature that the main economic impact of newcomers is job creation (FINDLAY et al., 2000). However, recent empirical studies tend to suggest that there is basically no difference between local and newcomer entrepreneurs in terms of job creation (BOSWORTH, 2006).

In all of this research it is of course important to define the rural areas carefully. WEBBER et al. (2009) recently concluded that labour productivity is generally lower in rural areas than in urban areas, but that productivity is the lowest in sparse urban areas. The difference is predominantly linked to the industrial structure. They also conclude that the skills needed to boost productivity may be best secured through attracting people into rural areas rather than simply seeking to retrain the local population.

In highly developed countries there has been a reversal of the net migration from rural to urban areas. Historically, rural areas offered few employment opportunities except in the primary sector (Figure 1). Therefore, there was selective out-migration, a 'brain drain', in which migrants could benefit from opportunities offered by urban settlements. On the other hand, there has always been some migration from urban to rural areas driven by a desire to live in a more environmentally-friendly area, whatever the circumstances. For example, retired people have been moving to rural areas to benefit from cheaper housing and greater opportunities for leisure activities. However, lifestyle migration is increasingly important also among those in employment, particularly when high-speed internet services can enable them to remain effectively connected to the urban agglomerations. Consequently, this type of migration, combined with retirement migration and return migration of rural people who have worked in the city, has now become noticeable in urban-rural migration in many developed countries.

INSERT FIGURE 1 ABOUT HERE

Some past studies have shown the negative influences of newcomers on rural areas, while others have stressed their positive impacts and their role as a catalyst for the economic regeneration of the areas. Some studies focusing on local entrepreneurs in rural areas are

claiming that the diversification of economic activities is mainly driven by locals and not by newcomers (STOCKDALE, 2005). Such studies also claim that locals have more impact on rural economic regeneration. In contrast, the new urban-to-rural migrants perceive rural areas as a dynamic, expanding and entrepreneurial milieu in which to invest (BRYANT, 1989; STHATHOPOULOU et al., 2004). Rural areas that provide an entrepreneurial milieu do not only attract such migrants but may also encourage the local people to become more entrepreneurially-oriented. Hence, the fostering of an entrepreneurial milieu in rural areas is increasingly seen as a means to create better places for people to live. However, while rural areas may be idyllic places for newcomers, they may not remain so for the local population. Given this background, we evaluate and compare in the next section newcomers and local rural entrepreneurs by means of a meta-analytic approach.

NEWCOMER AND LOCAL RURAL ENTREPRENEURS

The heterogeneity and uniqueness of rural areas has often encouraged researchers to study rural entrepreneurship by means of qualitative research based on a relatively small number of in-depth interviews. Naturally, the generalization of results drawn from such small samples of may be difficult, as authors usually stress in their conclusions. The potential benefit of combining results from several small-scale studies which address similar research hypotheses led us to deploy a meta-analytic approach. This enables us to obtain more general results by means of accumulation of existing knowledge about rural entrepreneurs. Against the theoretical background and empirical evidence referred to earlier, we compare newcomer and local entrepreneurs along a number of dimensions: geographic (country, remoteness); demographic (gender, age and education); production sector (agriculture, tourism and other sectors); motivation (lifestyle, locality, job opportunities for self and family, and subsidy); and their contribution to the four types of rural capital (natural, man-made, social and

human). After describing the meta-analytic sample, we first test for differences by means of classic *z* and chi-square tests. Following this, we investigate the impact of entrepreneurs on the development of the different types of rural capital in terms of their origin (local or newcomer) and other entrepreneurial characteristics.

Prefatory remarks

The meta-analytic approach adopted in the present paper was first used particularly in medical research to re-evaluate the effectiveness of various treatments (SUTTON et al., 2000). Subsequently, it became popular in the social and economic sciences (BAAIJENS and NIJKAMP, 2000; OLTMER, 2003; VOLLET and BOUSSET, 2002; etc.). However, meta-analysis has actually a long history and was first undertaken in statistics by PEARSON (1904). Many different meta-analytic techniques are nowadays available to deal with different types of data, both qualitative and quantitative.

The qualitative characteristics of rural entrepreneurship studies and the decision to use a meta-analytic approach led us to define two groups of variables in this study (Table 1). The first group are called ‘study variables’. They are derived in order to measure the effects of the research and publication process itself. The second group of variables are the ‘entrepreneurial variables’.

One of the entrepreneurial variables is the geographic origin of the entrepreneurs. Here we distinguish entrepreneurs who are born locally, or who at least grew up in the local environment, from the newcomers who settle in rural areas after a certain time of experiencing urban life. The latter include return migrants. In this study, one of our main concerns is to see if these two types of entrepreneurs can really be differentiated in terms of the dimensions defined earlier.

INSERT TABLE 1 ABOUT HERE

After formulating which variables to use in our analysis, we collected as many applied studies as could be retrieved after an in-depth literature search using different search tools, such as Web of Science, Google scholar, diverse journals and databases, books and reports. Typical keywords were: rural, migration, entrepreneurship, in-migrants, incomers, newcomers, rural entrepreneur, and local entrepreneur. Because this research area has only been developed during the last two decades, and because all studies had to fit precisely the research focus outlined above, the number of retrieved studies that could be codified into the meta-sample was relatively limited. Moreover, the search has been restricted to literature in the English language. Nonetheless, we are confident that the finally selected 22 papers dating from 1995 to 2007 are broadly representative of this literature.

A major task in meta-analysis is the codifying of the information contained in the available studies. Particularly in cases where there is considerable heterogeneity among the research documents, the search involved in defining the list of directly comparable attributes and findings is time-consuming. The use of qualitative research methodologies in the primary studies increases the extent of heterogeneity. The selected documents were therefore twice independently codified, and the results compared. Where interpretations differed (in less than 10% of individual cells), coding was reconsidered until a consensus was reached. Ultimately, the 22 papers yielded 49 cases of which the main features are reported in the Appendix, predominantly in the form of binary dummy variables. This approach permits us to combine key features (study attributes and conclusions) of the primary studies in a way that does not require the pooling of the micro data on individual entrepreneurs. The micro data are neither available to the meta-analyst nor directly comparable, due to major differences in the collected information in primary studies, for example due to differences in the wording of

questions in interviews. Hence it is only by means of codifying the available evidence in the form of a limited number of categorical variables that the empirical evidence in the literature can be effectively summarised in the form of a one single dataset.

Among the 22 studies included in our meta-analysis, most were published post 2000 (Table 2). Three-quarters of the studies were published in refereed journals (see Table 3). The dominance of refereed primary research provides a form of quality control for the meta-analysis. The non-refereed studies are two research reports and three conference papers. As noted earlier, rural studies are mainly based on qualitative analysis of in-depth interviews or ethnographic research. Seven papers used a survey approach. The applied studies that adopted a survey approach generated relatively large samples of data. The number of rural entrepreneurs interviewed in the qualitative studies varied between 1 and 83. Cases derived from quantitative analyses were based on survey responses of between 37 and 473 rural entrepreneurs.

The UK has been the most common country from which studies on rural entrepreneurship originated (9 out of 22 studies). Studies from southern Europe (Portugal, Spain, France, Italy and Greece) also make up a relatively large proportion. Among the sample of studies, one study focused on Russian and Ukrainian entrepreneurs in the post-communist era. Another study focused on China and there was also one study from Australia. Hence, the majority of the studies were from Europe.

Most studies yielded more than one case observation, usually one on local entrepreneurs, and one on newcomer entrepreneurs. The maximum number of cases per study is six, originating from the article by KALANTARIDIS and LABRIANIDIS (2004), and referring to two entrepreneurial types in each of three regions. In total, the 22 studies yielded 49 cases, representing 2,802 entrepreneurs (Table 3).

INSERT TABLE 2 ABOUT HERE

As noted earlier, construction of the database is the most time consuming part of a meta-analysis. Ultimately, we coded 22 variables from our sample of 49 cases. The variables are defined such that the number of missing observations is minimized. Given the predominantly qualitative nature of the available information, most of the variables are of a categorical (binary) type. Table 3 reports two types of summary statistics. The first type is the unweighted mean, in which each of the 49 cases has equal weight. The second type is the weighted mean in which cases are weighted by the number of rural entrepreneurs on which the primary observation is based. The difference is large where qualitative and quantitative studies have different features. Thus, among the 49 cases, 36 (73.5%) refer to in-depth interviews. However, the large samples used in quantitative studies imply that the qualitative studies only cover 19.9% of all researched rural entrepreneurs.

Rural areas themselves are quite heterogeneous, some are on the periphery of major urban agglomerations while others are geographically remote and separated from major population centres by mountains, lakes or long roads. Of the 49 cases, 28 (57.1%) were conducted in remote rural areas and involved mainly qualitative research, with only 29.1% of the studied rural entrepreneurs living in such regions.

The meta-analysis permits a fairly balanced study for contrasting newcomers with local entrepreneurs: the former account for 61.2% of the cases and 43.8% of the entrepreneurs. About one-fifth of the cases focus exclusively or predominantly on female entrepreneurship. However, most of these cases are small-sample qualitative studies that refer together to only 65 entrepreneurs. Because the total number of entrepreneurs covered by all 49 cases is 2,802, the weighted number of cases that focus exclusively or predominantly on female entrepreneurship is only 2.3% of the total number of cases..[3] Entrepreneurs aged 45

and above represent about half the number of cases and 31.6% of the entrepreneurs. Over half of the cases (and 37.6% of the entrepreneurs) are highly educated persons. In terms of sectoral composition, a split is made between agriculture, tourism, and other sectors. As a case may refer to a mixed group of entrepreneurs covering more than one sector, these percentages do not add up to 100. The "other sectors" category is dominant, accounting for more than two-thirds of the employment, and covers manufacturing and all services other than tourism. Four types of motivation for entrepreneurial activity are identified: lifestyle (found among 36.4% of entrepreneurs), locality (40.8%), family/employment (53.6%) and public subsidies (3.7%). No split was made between seeking employment opportunities for the entrepreneur and for his/her family members, because in most cases this was a joint goal.

Finally, with respect to the contribution to rural development, job creation ('contribution to human capital' using CASTLE's (1998) terminology) is clearly the most common impact. Nearly 85% of entrepreneurs made this contribution. The next most common is a contribution to social capital (which is more often found in qualitative research), whereas a contribution to natural capital is the least common (18.4% of cases and 7.5% of the entrepreneurs).

INSERT TABLE 3 ABOUT HERE

Change agents in rural areas

Early applied studies stressed the differences between newcomers and local entrepreneurs, and assumed that newcomers are the main change agents in terms of creating new rural areas. Here we investigate descriptively and statistically the validity of these earlier conclusions. Beside outcomes we also consider the geography of the study (remoteness and country).

Given the limited information provided in primary studies regarding the geographic characteristics these were the only geographic identifiers feasible.

Table 4 compares the means of the data that we have on the two types of entrepreneurs. Because all variables in this table are binary, we also conduct conventional *z*-tests on the statistical significance of the difference in estimated probabilities for local entrepreneurs p_l and newcomer entrepreneurs p_n. With a sample size of 49 cases and 61% of our cases referring to newcomer rural entrepreneurs, this approach is statistically quite valid.[4] We consider the null hypothesis H_0: $p_l - p_n = 0$ against both the two-tailed alternative H_a: $p_l - p_n \neq 0$ and the appropriate one-tailed alternative. Because of the small sample size ($n = 49$), we consider a 10% significance level a reasonable criterion. On this basis, we find statistical significance of the difference in probabilities for the following variables: southern European countries, age, education, agriculture, tourism, lifestyle, family/employment, man-made capital and social capital. In the case of southern European countries, this simply reflects that among the cases concerning newcomers a large proportion originated from these countries compared with the cases concerning locals.

On the basis of Table 4, we conclude that newcomer entrepreneurs are likely to be older and better educated. They are overrepresented in rural tourism, but underrepresented in agriculture. Lifestyle is a far more important motivating factor in rural business development for newcomer entrepreneurs than for local entrepreneurs. The latter, however, are relatively more motivated by employment for themselves and their families. The results with respect to motivation are reconfirmed with the simple two-way contingency table shown in Table 5. The corresponding chi-square test is significant at the 1% level for both lifestyle and family/employment. There is no significant difference between newcomers and locals in terms of locality and public subsidies as motivating factors. One has to be cautious, however, with respect to the interpretation of these tests as they are not strictly valid where the

frequencies in the contingency tables are less than 5. Nonetheless, based on Tables 4 and 5 it appears reasonable to conclude that lifestyle is the dominant reason for newcomers to be in rural areas. On the other hand, employment is much less a motivation for newcomers, but it is the prime motivation for local entrepreneurs.

INSERT TABLE 4 ABOUT HERE

INSERT TABLE 5 ABOUT HERE

Changes in rural areas

In this section, we investigate the statistical significance of the association between the contributions of the entrepreneurs with respect to their origin and characteristics by using the binary logistic regression model, which is simply a non-linear transformation of the linear regression model. Binary logistic regression is a type of regression analysis in which the dependent variable is a binary dummy variable and the independent variables can be of any type (e.g., VERBEEK, 2004).

On the basis of our data set, we constructed different models. With a model based only on 49 observations (weighted by the number of rural entrepreneurs corresponding to each case), there is a danger that any atheoretic search for the best-fit model leads to over-fitting and a lack of robustness to varying the number of cases. Instead, we used the following procedure. First, all models include the origin of the entrepreneurs (local or newcomer) as an explanatory variable because the prime focus of the paper is to identify the differences between these two types of entrepreneurs in terms of contributions to rural development. Besides the origin of the entrepreneur, likely influences on the development of the different types of capital are sectoral structure and geography (e.g., WEBBER, 2009). In order to maximize the remaining degrees of freedom in the model, and to ensure that the included

variables are rather orthogonal (uncorrelated), one indicator variable was used for each of the two types of influence: respectively, a dummy variable referring to employment in 'other sectors' and a dummy variable representing development in remote rural areas.[5] Dummy variables representing the countries or demographic characteristics of the entrepreneurs (except for demographic differences embedded in their origin) turned out to be statistically insignificant, and models with these variables are not reported. Again, to avoid over-fitting, the same structure was imposed on the model for all four types of capital development (natural, man-made, social, and human). However, given the differences between qualitative and quantitative studies, as signalled by the descriptive results of Table 3, models were separately estimated for all observations, and for cases derived only from qualitative data (in-depth interviews) (see Table 6).[6]

INSERT TABLE 6 ABOUT HERE

Since the logistic model is a non-linear type of regression, the statistic which is suggestive of model validity is the chi-square statistic (HOSMER and LEMESHOW, 1989). After checking the validity of the models by means of the chi-square test, another important performance measure is the rate of correct classification. The chi-square test signals the statistical validity of all models reported in Table 6, except that the significance level is relatively high (a little above 10%) for the models of contributions to natural and human capital in the case of only qualitative data. The correct classification rate varies between 76.3% and 96.1%.

In all models we investigate the extent to which the origin of entrepreneurs influences their contributions to rural capital, as defined by CASTLE (1998). The results of our analysis show that the origin of entrepreneurs is significant in explaining the contributions to man-

made capital at the 1% level, when using all cases, and also when just using the studies based on qualitative data. Hence we conclude that newcomer investment in rural areas contributes to gentrifying the man-made environment. This can be both in terms of the buildings and structures required for their enterprises and in terms of their own housing.

As one might expect, rural entrepreneurs make a significant contribution to enhancing or maintaining the natural capital in the remote rural regions (although the effect is just under being statistically significant at the 10% level in the qualitative cases, with a *p* value of 0.122). As we would also expect, the sign of the impact of development of manufacturing and services other than tourism ('other sectors') on natural capital is negative, but the coefficient is not statistically significant. Model 1b shows greater investment in man-made capital may be expected in these other industries, and this effect is statistically significant at the 5% level (but not in model 2b).

Another interesting result from the logistic meta-regression model is that, in remote regions, the rural entrepreneurs are required to invest more in local social capital. Given that the residents of such remote regions are usually in tight-knit communities, it is not surprising that successful entrepreneurship in such remote regions must rely on connecting with these close networks. In Table 4 we saw that there is less evidence of a contribution to social capital among the newcomer cases, and the coefficient sign is correspondingly negative in Table 6, but the variable is not statistically significant in the latter table.

The equations for human capital development, 1d and 2d, suggest that job creation by rural entrepreneurs is greater in the case of other sectors, rather than in tourism and agriculture (but not significant in model 2d). An interesting contrast between the models based only on qualitative data and those based on all cases can be observed by comparing models 1d and 2d with respect to the influence of remoteness. When pooling all cases, job creation is less likely in rural entrepreneurship if it is undertaken in remote rural regions.

Those researchers using qualitative data, however, found that in remote rural regions there was a greater emphasis on human capital development, using the Castle (1998) terminology. In both cases, the coefficient is statistically significant at the 5% level.

RETROSPECT AND PROSPECT

Today, socio-economic conditions and infrastructural and technical capabilities of rural areas are changing. Many researchers have argued that migrants coming to rural areas are the agents of change. However, rural areas cannot be changed without the engagement of the local population. Therefore, in this study we aimed to compare the impact of local and newcomer rural entrepreneurs. For this, we used a meta-analytic approach.

The most interesting output of meta-analysis is the possibility to come up with new theoretical propositions. According to our results, we suggest four main propositions for further research. The first proposition is that newcomer and local entrepreneurs are not really different with respect to their contributions to natural and human capital. The second proposition is that newcomers play a crucial role in the continuity and regeneration of the physical environment in rural areas. The third proposition is that the search for a new lifestyle is the main motivator of entrepreneurs moving to rural areas, but that the need to generate employment for oneself and one's family is the main factor driving local entrepreneurs to remain in rural areas and start up a business there. The fourth and final proposition that is consistent with the results of our meta-analysis is that the origin of the entrepreneur may not be of direct importance in terms of generating additional rural capital, but that entrepreneurs may indirectly affect the different types of rural capital differently through their differences in preferred type of economic activity. For example, manufacturing and services investment may be particularly beneficial for job creation, but detrimental to the natural environment,

and newcomer rural entrepreneurs are more likely to invest in such activity than in agriculture.

As a result, we suggest that the development in rural areas depends on the individual entrepreneurial choices and personal life preferences rather than on the origin of the entrepreneurs. Thus, the primary role of the newcomer entrepreneur in the rural areas is not to be the person 'responsible' for the development. Their interaction and integration with the local rural population may stimulate the local people to be more entrepreneurially-oriented themselves. This interaction may also lead the local entrepreneurs to be more concerned about the problems of their rural region, while the motivation and behaviour of newcomer entrepreneurs appears to be primarily related to their own lives and needs.

Although we came up with some very interesting results, the way in which the recent literature has addressed the issues has severely limited our ability to conduct comparative research in a quantitative form. For example, we had to exclude studies in which the origin of the entrepreneurs was not precisely given. In addition, using mainly ethnographic studies limits the potential to obtain results that can be generalized.

It must be noted that there are also subjective judgements in the construction of meta-analytic databases that can potentially bias the results. However, this is no different from the empirical modelling in primary studies which also requires a mix of theory, data, and judgement. Furthermore, our measure of the rural impact was limited to the presence of an impact or not. The available studies did not permit us to measure the magnitude or the efficiency of the impact. Despite these limitations, the present synthesis of applied studies has nonetheless been successful in highlighting differences and similarities between newcomer and local entrepreneurs in terms of their characteristics and impacts on rural capital.

It is obvious that for many city dwellers their urban areas do not only have pull factors but also push factors. The formulation of policies to enhance wellbeing in urban areas cannot

be done without these push factors having been made explicit. On the other hand, rural areas do not only have push factors such as a lack of jobs and low incomes but there are rural pull factors as well, such as the natural environment, the expected lower level of stress, and the more attractive lifestyle. But the extent to which the different types of rural capital should be preserved or enhanced is a crucial question in designing policies for sustainable rural development. In addition, the futures of urban and rural areas are intertwined. Rural and urban policies cannot be formulated independently. While we have established by means of meta-analysis that, except for their impact on man-made capital, there is little to distinguish local and newcomer entrepreneurs in terms of their contributions to rural development, there remains the possibility that the magnitude and efficiency of these contributions differs between the two groups of entrepreneurs. This is an important issue that must be explored in future research.

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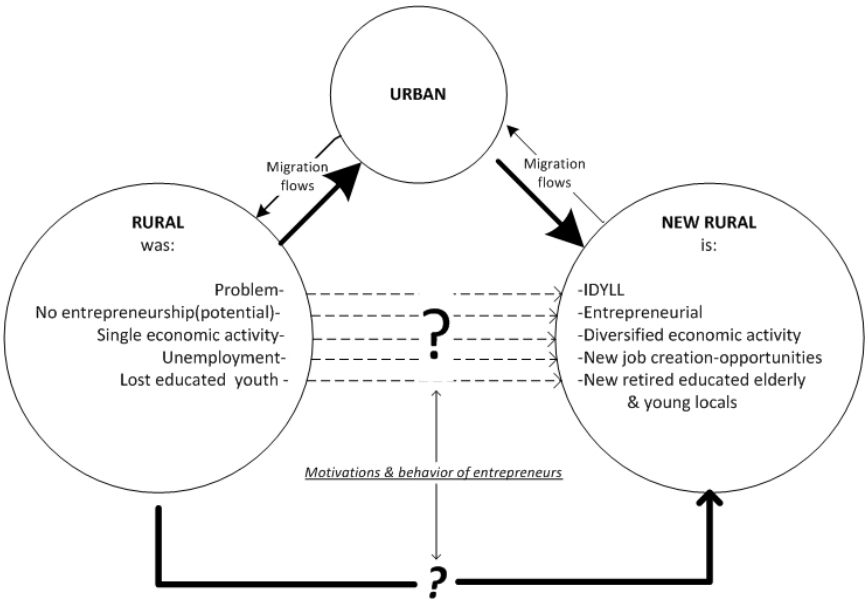

Figure 1. Conceptual framework – changes in rural areas

Table 1. *Variables used in the analysis*

Study variables	
pubyear	Year in which the study was published
datayear	Last year of the data collection in which usually interviews were held
pubtype	Type of publication of the study (1=refereed journal article; 0=paper/report)
datatype	Methodology used to collect data (1=qualitative; 0=quantitative)
obs	Number of entrepreneurs interviewed in the applied study
remote	Accessibility of rural areas (1=remote; 0= other)
region	The part of the world in which the study was conducted (1="Old World" (China, England, France, Greece, Russia, Scotland, Spain, Ukraine); 0= "New World" (Australia, Canada, USA)
Entrepreneurial variables	
origin	Origin of the entrepreneurs (1= newcomer, 0 = local or origin not specified)
gender	Gender of entrepreneur (1 = female; 0 = male or both genders)
age	Mean age (1 = mean age is greater than or equal to 45 years; 0 = less than 45 years)
education	Education (1=mean level of education is high; 0 = mean level of education is not high)
agriculture	Entrepreneurs in agriculture sector (1 = at least one entrepreneur is employed in agriculture; 0 = no entrepreneur in agriculture)
tourism	Entrepreneurs in tourism, hotel and restaurant trade (1 = at least one entrepreneur is employed in these sectors; 0 = no entrepreneurs in these sectors)
othersectors	Entrepreneurs in other sector (1 = at least one entrepreneur is employed in these sectors; 0 = no entrepreneurs in these sectors)
qol	Motivation: lifestyle, quality of life or housing (1 = yes; 0 = no)
locality	Motivation: locality-specific factors (1 = yes; 0 = no)
family/employment	Motivation: family reasons (including own and family employment) (1 = yes; 0 = no)
subsidy	Motivation: subsidy or help of the government (1 = yes, 0 = no)
natural	Contribution of entrepreneurs to natural resources in rural areas (1 = yes; 0 = no)
manmade	Contribution of entrepreneurs to the physical man-made environment (1 = yes; 0 = no)
social	Contribution of entrepreneurs to social institutions and collective wellbeing (1 = yes; 0 = no)
human	Contribution of entrepreneurs to job creation, local skills, etc. (1 = yes; 0 = no)

Table 2. Papers used in the analysis

Author	Publication Year	Publication Type	Data Type	Country	No of cases included
GARCIA-RAMON M D et al	1995	Journal	Qualitative / Interviews	Spain	4
SMITH M S et al	1997	Journal	Quantitative/ Survey	USA	1
ANDERSON A R(a)	2000	Journal	Qualitative / Interviews	Scotland	2
ANDERSON A R (b)	2000	Journal	Qualitative / Interviews	Scotland	2
MANKELOW G and MERRILEES B	2001	Journal	Qualitative / Interviews	Australia	2
JACK S L and ANDERSON A R	2002	Journal	Qualitative / Interviews	Scotland	2
PANIAGUA A	2002	Journal	Qualitative / Interviews	Spain	1
KALANTARIDIS C and LABRIANIDIS L	2004	Journal	Qualitative / Interviews	Ukraine, Russia	6
ZONTANOS G and ANDERSON A R	2004	Journal	Qualitative / Interviews	Greece	2
ANDERSON A R and MCKAIN R	2005	Journal	Qualitative / Interviews	Scotland	2
SKURAS D et al	2005	Journal	Quantitative/ Survey	Spain, Portugal Greece, Italy	4
STOCKDALE A	2005	Journal	Quantitative/ Survey	England	1
AITKEN K	2006	Report	Qualitative / Interviews	England	2
BOSWORTH G	2006	Report	Quantitative/ Survey	England	2
KALANTARIDIS C and BIKA Z	2006	Journal	Quantitative/ Survey	England	2
SIEMENS L	2006	Paper	Qualitative / Interviews	Canada	2
ZHANG et al	2006	Journal	Quantitative/ Survey	China	1
GOMEZ VELASCO M and SALEILLES S	2007	Paper	Qualitative / Interviews	France	4
KALANTARIDIS C	2007	Paper	Quantitative/ Survey	England	2
MAILFERT K	2007	Journal	Qualitative / Interviews	France	2
STONE I and STUBBS C	2007	Journal	Qualitative / Interviews s	France, Spain	2
WEBER S S	2007	Journal	Qualitative / Interviews	USA	1
Total number of cases					**49**

Table 3. *Summary description of the meta-analysis sample*

	total number of cases	%	total number. of entrepr.	weighted %
Study variables				
Year of publication			Ranges from 1995 to 2007	
Year of data collection			Ranges from 1992 to 2006	
Primary sample size			Ranges from 1 to 473	
% published in refereed journals	49	75.5	2802	66.6
% using in-depth interviews and qualitative analysis	49	73.5	2802	19.9
% focusing on remote rural areas	49	57.1	2802	29.1
% using observations from the United Kingdom	49	34.7	2802	43.9
% observations from Portugal, Spain, France, Italy and Greece	49	38.8	2802	23.9
Entrepreneurial variables				
% newcomers	49	61.2	2802	43.8
% of cases focusing predominantly on females	49	20.4	2802	2.3
% aged 45 and above	39	48.7	1887	31.6
% highly educated	46	56.5	2002	37.6
% in agriculture	49	32.7	2802	31.3
% in tourism	49	26.5	2802	14.8
% in other sectors	49	69.4	2802	77.3
% motivated by lifestyle	45	53.3	1889	36.4
% motivated by locality	47	53.2	2130	40.8
% motivated by family/ employment	47	48.9	2130	53.6
% motivated by subsidies	47	10.6	2130	3.7
% contribute to natural capital	49	18.4	2802	7.5
% contribute to man-made capital	49	28.6	2802	17.1
% contribute to social capital	49	64.4	2289	36.9
% contribute to human capital	49	55.1	2802	84.6

Table 4. Descriptive statistics and z statistics of the local / newcomer entrepreneur comparison

Descriptive Statistics				*z*-test	
	Type	***N***	***p***	$p_l - p_n$	Significance (2 tailed) **H_0:** $p_l - p_n = 0$ **H_a:** $p_l - p_n \neq 0$
Remote	L	19	57.9	1.2	0.934
	N	30	56.7		
UK	L	19	36.8	3.5	0.802
	N	30	33.3		
Portugal, Spain France, Italy, Greece	L	19	26.3	-20.4 *	0.153
	N	30	46.7		
Gender	L	19	26.3	9.6	0.417
	N	30	16.7		
Age	L	15	20.0	-46.7 ***	0.005
	N	24	66.7		
Education	L	18	33.3	-38.1 ***	0.011
	N	28	71.4		
Agriculture	L	19	47.3	24.0 **	0.081
	N	30	23.3		
Tourism	L	19	15.8	-17.5 *	0.176
	N	30	33.3		
Other industries	L	19	68.4	-1.6	0.906
	N	30	70.0		
Lifestyle	L	17	11.8	-66.8 ***	0.000
	N	28	78.6		
Locality	L	18	61.1	12.8	0.393
	N	29	48.3		
Family / Employment	L	18	77.8	46.8 ***	0.002
	N	29	31.0		
Subsidy	L	18	11.1	0.8	0.931
	N	29	10.3		
Natural capital	L	19	21.1	4.4	0.699
	N	30	16.7		
Man-made capital	L	19	15.8	-20.9 *	0.115
	N	30	36.7		
Social capital	L	18	77.8	22.2 *	0.127
	N	27	55.6		
Human capital	L	19	57.9	4.6	0.752
	N	30	53.3		

Notes: * statistically significant at 10% level; ** statistically significant at 5% level; *** statistically significant at 1% level (when based on the appropriate one-tail tests)

Table 5. *Chi-square test for motivations of rural entrepreneurs*

Motivation		Origin		Chi-Square test		
		Local	Newcomer	Value	df	Sig.
Lifestyle	No	15	6	18.97	1	0.000
	Yes	2	22			
Locality	No	7	15	0.735	1	0.391
	Yes	11	14			
Family/employment	No	4	20	9.711	1	0.002
	Yes	14	9			
Subsidy	No	16	26	0.007	1	0.934
	Yes	2	3			

Table 6. *Logistic regression models*

Model					Coefficients		
	Dependent variable	n	Sig. χ^2	Correct classification rate	Variable	B	Sig.
Model 1: All cases							
1a	Natural capital	49	0.017	96.1	Origin	-1.214	0.363
					Other Sectors	-1.772	0.189
					Remote	3.579	0.100
					Constant	-3.163	0.174
1b	Man-made capital	49	0.000	91.2	Origin	5.100	0.007
					Other Sectors	3.372	0.036
					Remote	-1.183	0.294
					Constant	-7.584	0.001
1c	Social capital	45	0.006	77.1	Origin	-0.303	0.742
					Other Sectors	0.723	0.578
					Remote	3.072	0.007
					Constant	-1.615	0.231
1d	Human capital	49	0.001	95.1	Origin	0.641	0.586
					Other Sectors	2.905	0.013
					Remote	-2.393	0.025
					Constant	0.727	0.581
Model 2: Cases based on qualitative data/interviews only							
2a	Natural capital	38	0.133	83.9	Origin	1.777	0.139
					Other Sectors	-1.590	0.223
					Remote	2.275	0.122
					Constant	-3.364	0.044
2b	Man-made capital	38	0.010	77.5	Origin	2.948	0.008
					Other Sectors	0.708	0.524
					Remote	0.218	0.797
					Constant	-3.444	0.021
2c	Social capital	38	0.030	79.6	Origin	-1.300	0.180
					Other Sectors	-0.956	0.430
					Remote	1.985	0.024
					Constant	1.622	0.237
2d	Human capital	38	0.114	76.3	Origin	0.968	0.284
					Other Sectors	0.764	0.455
					Remote	1.838	0.040
					Constant	-1.102	0.363

Note: All models have been estimated with *Stata* 9. Observations are weighted by the sample sizes of the primary studies. These analytic weights are assumed inversely proportional to the variance of a meta-observation.

Appendix 1. *The database*

OBSNR	AUTHORS	PUBYEAR	COUNTRY	PUBTYPE	DATATYPE	OBS	REMOTE	ORIGIN	GENDER	AGE	EDUC	AGRIC	TOURISM	OTHINDUS	QOL	LOCALITY	FAMILY	SUBSIDY	NATURAL	MANMADE	SOCIAL	HUMAN
1	Garcia-Ramon et al.	1995	Spain	1	1	7	0	0	1	0	1	1	1	0	0	1	1	0	1	1	0	0
2	Garcia-Ramon et al.	1995	Spain	1	1	7	0	1	1	0	1	0	1	0	1	1	0	0	1	1	0	1
3	Garcia-Ramon et al.	1995	Spain	1	1	7	1	0	1	1	0	0	1	0	0	1	1	1	1	1	1	0
4	Garcia-Ramon et al.	1995	Spain	1	1	7	1	1	1	1	0	0	1	0	1	1	0	1	1	1	1	0
5	Smith et al.	1997	USA	1	0	118	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1
6	Anderson - a	2000	Scotland	1	1	1	1	1	0	0	1	0	1	0	1	1	0	0	0	1	0	0
7	Anderson - a	2000	Scotland	1	1	1	1	1	1	1	0	0	1	0	0	1	1	0	0	0	1	0
8	Anderson - b	2000	Scotland	1	1	9	1	1	0	.	1	1	1	1	1	1	0	0	1	1	0	1
9	Anderson - b	2000	Scotland	1	1	5	1	0	0	.	0	1	0	1	0	1	1	0	1	1	1	1
10	Mankelow and Merrilees	2001	Australia	1	1	3	1	0	1	1	1	0	0	1	1	0	0	0	0	0	1	1
11	Mankelow and Merrilees	2001	Australia	1	1	1	1	1	1	1	1	0	0	1	0	0	1	0	0	0	1	0
12	Jack and Anderson	2002	Scotland	1	1	5	1	1	0	.	1	0	1	1	1	1	1	0	0	0	1	0
13	Jack and Anderson	2002	Scotland	1	1	2	1	0	0	.	0	0	0	1	1	1	1	0	0	0	1	0
14	Paniagua	2002	Spain	1	1	44	0	1	0	.	1	0	1	0	1	1	1	1	0	0	1	1
15	Kalantaridis and Labrianidis	2004	Ukraine	1	1	17	1	1	0	1	1	0	0	1	1	0	0	0	0	1	1	0
16	Kalantaridis and Labrianidis	2004	Ukraine	1	1	83	1	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1
17	Kalantaridis and Labrianidis	2004	Russia	1	1	74	0	1	0	1	1	1	0	1	1	1	0	0	0	1	0	1
18	Kalantaridis and Labrianidis	2004	Russia	1	1	26	0	0	1	0	1	0	0	1	0	0	1	0	0	0	0	0
19	Kalantaridis and Labrianidis	2004	Russia	1	1	34	1	1	0	1	1	1	0	1	1	0	0	0	0	1	0	1
20	Kalantaridis and Labrianidis	2004	Russia	1	1	66	1	0	0	0	0	1	0	1	0	0	1	0	0	0	1	1
21	Zontanos and Anderson	2004	Greece	1	1	1	1	0	0	1	0	1	0	0	0	1	1	0	0	0	1	1
22	Zontanos and Anderson	2004	Greece	1	1	1	1	1	0	0	0	1	0	0	1	1	1	0	0	0	1	1
23	Anderson and McCain	2005	Scotland	1	1	16	0	0	0	.	0	0	1	1	0	1	1	0	0	0	1	0
24	Anderson and McCain	2005	Scotland	1	1	34	0	1	0	.	1	0	1	1	1	1	0	0	0	0	1	0
25	Skuras et al.	2005	Greece	1	0	111	1	0	0	0	1	1	0	0	0	0	1	0	1	0	.	0
26	Skuras et al.	2005	Italy	1	0	123	1	1	0	1	1	0	1	1	1	1	1	0	0	0	.	1
27	Skuras et al.	2005	Portugal	1	0	154	1	1	0	1	0	1	1	0	0	0	0	0	0	0	.	0
28	Skuras et al.	2005	Spain	1	0	125	0	1	0	0	1	0	0	1	1	1	1	0	0	1	.	1
29	Stockdale	2005	England	1	0	128	0	1	0	.	.	0	0	1	1	0	0	0	0	1	0	1
30	Aitken K	2006	England	0	1	12	0	0	0	0	1	0	0	1	0	1	1	0	0	0	1	0
31	Aitken K	2006	England	0	1	6	0	1	0	0	1	0	0	1	0	1	0	0	0	0	1	0
32	Bosworth	2006	England	0	0	269	0	1	0	.	.	1	0	0	.	.	.	.	0	0	0	1
33	Bosworth	2006	England	0	0	403	0	0	0	.	.	0	0	1	.	.	.	.	0	0	0	1
34	Kalantaridis and Bika	2006	England	1	0	62	1	1	0	1	1	0	0	1	0	0	1	0	0	0	1	1
35	Kalantaridis and Bika	2006	England	1	0	37	1	0	0	0	0	1	0	1	0	1	1	0	0	0	1	1
36	Siemens	2006	Canada	0	1	1	1	1	0	0	1	0	0	1	1	0	0	0	0	0	1	1
37	Siemens	2006	Canada	0	1	1	1	1	0	1	1	0	0	1	1	0	0	0	0	0	1	1
38	Zhang et	2006	China	1	0	473	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
39	Gomez Velasco and Saleilles	2007	France	0	1	1	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	0
40	Gomez Velasco and Saleilles	2007	France	0	1	1	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0
41	Gomez Velasco and Saleilles	2007	France	0	1	1	0	1	1	1	1	0	0	1	1	0	0	0	0	0	0	0
42	Gomez Velasco and Saleilles	2007	France	0	1	1	0	1	0	1	0	0	0	1	1	0	0	0	0	0	0	0
43	Kalantaridis	2007	England	0	0	191	0	0	0	0	0	0	0	1	.	1	0	0	0	0	1	1
44	Kalantaridis	2007	England	0	0	50	0	1	0	1	0	0	0	1	.	0	0	0	0	0	1	1
45	Mailfert	2007	France	1	1	10	1	1	0	0	1	1	0	0	1	0	0	1	0	0	0	0
46	Mailfert	2007	France	1	1	10	1	0	0	0	1	1	0	0	0	1	1	1	0	0	1	0
47	Stone and Stubbs	2007	France	1	1	27	1	1	0	1	1	0	0	1	1	1	0	0	1	1	1	1
48	Stone and Stubbs	2007	Spain	1	1	31	1	1	0	1	0	0	0	1	1	0	0	0	1	1	1	1
49	Weber	2007	USA	1	1	5	1	0	1	0	0	1	0	0	0	0	1	0	0	0	1	1

NOTES

[1] This study is a part of the PhD research of Aliye Ahu GÜLÜMSER. Her PhD is supported by TUBITAK (The Scientific and Technological Council of Turkey).

[2] An earlier version of this paper was presented at the Regional Studies Association Annual International Conference, *Regions: The Dilemmas of Integration and Competition***,** 27th-29th May 2008, University of Economics Prague, Czech Republic.

[3] The weighted percentage of cases where the interviewed entrepreneurs are predominantly female is of course lower than the total percentage of female entrepreneurs among all 2,802 entrepreneurs represented by the 49 cases.

[4] It is not appropriate to conduct these tests with data weighted by the number of observations in each primary study because of the non-random split of the qualitative research (small samples) and quantitative research (large samples) with respect to the study attribute of interest, and because local entrepreneurs are overrepresented in the quantitative studies. Instead a multivariate analysis has been conducted by means of logistic regression model, with the results reported in Table 6.

[5] We also ran logistic regression models that included the variable 'datayear' (the last year of the data collection in which usually interviews were held). This variable was statistically insignificant in all regressions. Due to space constraints these results are not reported in the paper but available upon request from the authors.

[6] Models with interaction terms were also investigated, but such interaction terms were statistically insignificant, while reducing the statistical significance of the main effects.

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